

REMARKS

In the Office Action the Examiner noted that claims 1-20 are pending in the application, and the Examiner rejected all claims. By this Amendment, claims 5, 9, 13, and 17 have been amended. No new matter has been presented. Thus, claims 1-20 remain pending in the application. The Examiner's rejections are traversed below, and reconsideration of all rejected claims is respectfully requested.

The Specification

In item 2 on page 2 of the Office Action the Examiner stated that the title of the invention is not descriptive, and required a new title. By this Amendment, the title has been amended to include more descriptive language.

Double Patenting

In item 3 on page 2 of the Office Action the Examiner advised the Applicant that "claim 18 is a substantial duplicate of claim 14," and that should the indicated claims be found allowable, the duplicate claims will be rejected under 35 U.S.C. §101.

As neither of these claims has been found allowable at this point, it is respectfully requested that the Applicant be allowed to address any double patenting issues remaining once the rejection of these claims under 35 U.S.C. §103 is resolved.

Claim Rejections Under 35 USC §102

In item 5 on pages 3-4 of the Office Action the Examiner rejected claims 1, 4-5, 8, 13, and 16 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,489,982, issued to Ishibe (hereinafter referred to as "Ishibe"). The Applicant respectfully traverses the rejection of these claims.

Claim 1 of the present application recites:

A beam scanning apparatus, comprising a collimating lens in which a beam emitted from a light source is transformed into at least one of a convergent beam and a parallel beam with respect to an optical axis and outputted towards a slit, the collimating lens being one sheet of a spherical surface lens satisfying the relationship:

$$-0.3 < \frac{R2}{R1} < -0.1$$

$$0.05 < \frac{d}{f} < 0.5$$

in which, $R1$ denotes a curvature radius of a first surface of the collimating lens opposing the light source, $R2$ denotes a curvature radius of a second surface of the collimating lens opposing the slit, d denotes a center thickness of the collimating lens, and f denotes a focal length from the collimating lens to the light source.

Therefore, the beam scanning apparatus recited in claim 1 comprises a collimating lens which is "one sheet of a spherical surface lens." The Applicant respectfully submits that at least this feature of claim 1 is not disclosed in Ishibe.

The Examiner states that "Ishibe discloses a scanning optical system comprising a collimating lens (2) in which a beam emitted from a light source (semiconductor laser 1) is transformed into at least one of a convergent beam and a parallel beam with respect to an optical axis (col. 5, lines 46-50) and outputted towards a slit (aperture stop 3), the collimating lens being one sheet of a spherical surface lens." However, the Applicant respectfully submits that Ishibe does not disclose the collimating lens which is "one sheet of a spherical surface lens." Rather, Ishibe apparently only discloses a conventional collimating lens used in a scanning optical system, which is typically constructed of one sheet of a spherical surface lens and one sheet of an aspherical surface lens. This is in direct contrast to the beam scanning apparatus recited in claim 1 of the present application, which comprises a collimating lens which is "one sheet of a spherical surface lens," and therefore reduces production costs.

Therefore, Ishibe does not disclose at least the feature of "the collimating lens being one sheet of a spherical surface lens." Accordingly, Ishibe does not disclose every element of the Applicant's claim 1. In order for a reference to anticipate a claim, the reference must teach each and every element of the claim (MPEP §2131). Therefore, since Ishibe does not disclose the features recited in independent claim 1, as stated above, it is respectfully submitted that claim 1 patentably distinguishes over Ishibe, and withdrawal of the §102(e) rejection is earnestly and respectfully solicited.

Claim 4 depends from claim 1 and includes all of the features of that claim plus additional features which are not taught or suggested by Ishibe. Therefore, it is respectfully submitted that claim 4 also patentably distinguishes over Ishibe.

Claim 5 of the present application, as amended, also recites "the collimating lens being one sheet of a spherical surface lens." Therefore, it is respectfully submitted that claim 5 also patentably distinguishes over Ishibe.

Claim 8 depends from claim 5 and includes all of the features of that claim plus additional

features which are not taught or suggested by Ishibe. Therefore, it is respectfully submitted that claim 8 also patentably distinguishes over Ishibe.

Claim 13 of the present application, as amended, recites "a collimating lens, being one sheet of a spherical surface lens." Therefore, it is respectfully submitted that claim 13 also patentably distinguishes over Ishibe.

Claim 16 depends from claim 13 and includes all of the features of that claim plus additional features which are not taught or suggested by Ishibe. Therefore, it is respectfully submitted that claim 16 also patentably distinguishes over Ishibe.

Claim Rejections Under 35 USC §103

In item 7 on pages 4-5 of the Office Action the Examiner rejected claims 2, 6, and 15 under 35 U.S.C. §103(a) as being unpatentable over Ishibe in view of U.S. Patent No. 6,172,787, issued to Naiki (hereinafter referred to as "Naiki"). The Applicant respectfully traverses the rejection of these claims.

As discussed in the preceding section of this Amendment, claims 1, 5, and 13 patentably distinguish over Ishibe. Further, as Naiki merely discloses a laser beam scanning optical apparatus using a collimator lens having a positive refractive power in main and sub-scanning directions, Naiki does not cure the deficiencies of Ishibe regarding claims 1, 5, and 13. For a proper §103 rejection, the combined references must disclose all of the features of the rejected claims. Therefore, as claims 2, 6, and 15 depend from claims 1, 5, and 13, respectively, and include all of the features of those respective claims plus additional features which are not taught or suggested by the cited references, it is respectfully submitted that claims 2, 6, and 15 also patentably distinguish over the cited references, and the Applicant respectfully requests the withdrawal of the §103 rejections of these claims.

In item 8 on page 5 of the Office Action the Examiner rejected claims 3, 7, 9-10, 12, 14, 17-18, and 20 under 35 U.S.C. §103(a) as being unpatentable over Ishibe in view of U.S. Patent No. 6,005,703, issued to Maddox et al. (hereinafter referred to as "Maddox"). The Applicant respectfully traverses the rejection of these claims.

As discussed in the preceding section of this Amendment, claims 1, 5, and 13 patentably distinguish over Ishibe. Further, as Maddox merely discloses a collimator lens made of glass, Maddox does not cure the deficiencies of Ishibe regarding claims 1, 5, and 13. Therefore, as claims 3, 7, and 14 depend from claims 1, 5, and 13, respectively, and include all of the features

of those respective claims plus additional features which are not taught or suggested by the cited references, it is respectfully submitted that claims 3, 7, and 14 also patentably distinguish over the cited references.

Claim 9 of the present application, as amended, recites "the collimating lens being one sheet of a spherical surface lens." Therefore, as Ishibe does not disclose at least this feature, and Maddox does not cure this deficiency of Ishibe, it is respectfully submitted that claim 9 patentably distinguishes over the cited references.

Claims 10 and 12 depend from claim 9 and include all of the features of that claim plus additional features which are not taught or suggested by the cited references. Therefore, it is respectfully submitted that claims 10 and 12 also patentably distinguish over the cited references.

Claim 17 of the present application, as amended, recites "a collimating lens, being one sheet of a spherical surface lens." Therefore, as Ishibe does not disclose at least this feature, and Maddox does not cure this deficiency of Ishibe, it is respectfully submitted that claim 17 patentably distinguishes over the cited references.

Claims 18 and 20 depend from claim 17 and include all of the features of that claim plus additional features which are not taught or suggested by the cited references. Therefore, it is respectfully submitted that claims 18 and 20 also patentably distinguish over the cited references.

In item 9 on page 6 of the Office Action the Examiner rejected claims 11 and 19 under 35 U.S.C. §103(a) as being unpatentable over Ishibe in view of Maddox, as applied to claims 9 and 17, and further in view of Naiki.

As previously discussed in this Amendment, claims 9 and 17 patentably distinguish over Ishibe and Maddox, and the deficiencies of these references are not cured by Naiki. Further, claims 11 and 19 depend from claims 9 and 17, respectively, and include all of the features of those respective claims plus additional features which are not taught or suggested by the cited references. Therefore, it is respectfully submitted that claims 9 and 17 also patentably distinguish over the cited references.

Summary

In accordance with the foregoing, the specification and claims 5, 9, 13, and 17 have been amended. No new matter has been presented. Thus, claims 1-20 are pending and under

consideration.

There being no further outstanding objections or rejections, it is respectfully submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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